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ABSTRACT

Tech prep and school-to-work (STW) programs, partly based on the Southern Regional Education Board's High Schools that Work, are being used to restructure secondary education in Kentucky. Tech prep aims for a better understanding and application of technology, career awareness and planning, skills for a highly educated work force, a more focused high school vocational-technical curriculum, and a rigorous academic and vocational-technical skill continuum. The first tech prep student enrollment in the state was in 1992-93. The program was evaluated through collection of statewide data but longitudinal studies are needed to determine impact. STW in Kentucky includes work-based learning, school-based learning, and connecting activities. The program broadens educational, career, and economic opportunities for all students through partnerships of businesses, schools, community-based organizations, and state and local governments. Linkages with postsecondary programs should extend learning upward to baccalaureate programs. Staff development will be needed to align the teaching strategies of postsecondary institutions with secondary schools. School administrators will need to become aware of more programming options for schools, such as tech prep and STW, and they must learn how to create partnerships with business and the community. (Contains 11 references.) (KC)

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Reinventing Education through Tech Prep and School to Work
A Kentucky Model

Voices from the Field

Presented at UCEA Conference, Louisville, Kentucky
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Reinventing Education through Tech Prep and School to Work
A Kentucky Model

Concurrent with Goals 2000 and K-12 educational reform throughout the country, two pieces of national legislation--Tech Prep and School to Work--were enacted to improve students' preparation for the workforce (Dutton, 1995). Title IIIE of the Carl D. Perkins Vocational and Applied Technology Act Amendments of 1990 initiated the Tech Prep movement, a program of career planning and preparation that extended from eighth grade through two years of postsecondary education. The 1994 School-to-Work Opportunities Act expanded traditional vocational education and reflected a constructivist model of educational reform (Wiberg, 1995). The concepts and design of both of these programs contribute to a smooth and seamless transition from school to work and aim for higher levels of student achievement.

Another initiative that closely parallels principles of educational reform, Tech Prep, and School to Work is the "High Schools That Work" program conducted by a consortium of 19 states through the Southern Regional Education Board. This program blends challenging academic courses and vocational studies to raise the achievement of career-bound high school students (High Schools that Work, 1996).

This paper compares goals of these three educational programs and describes how schools in Kentucky have used these three

programs to help restructure secondary education. In addition, the evaluation process in Kentucky for Tech Prep and School to Work is discussed.

A Nation at Risk and the SCANS Report

Just as A Nation at Risk (Gardner, 1983) raised alarm over the educational performance of America's high school students in comparison with other countries and recommended higher expectations and more rigorous and measurable standards, a report from the Secretary's Commission on Achieving Necessary Skills (SCANS, 1991) warned that a lack of qualified employees for America's workforce presented a threat to our nation's ability to compete in a global economy. The SCANS report defined workplace know-how and levels of proficiency that schools must teach to prepare students for "productive employment in our modern economy" and that adults must possess "to compete in a global economy" (America 2000, 1991, p.3).

Following A Nation at Risk, more federal money was invested in K-12 education, and reform efforts related to the learning process such as student engagement in learning, time on task, and tests of basic skills. However, it was not until 1990 that six ambitious national education goals were adopted that initiated major revamping of schools. The SCANS report defined essential skills for workplace know-how and emphasized thinking skills, decision making, and personal qualities such as responsibility, self-esteem, and self-management as well as basic communications and mathematics skills. Integration of academic skills with real-world

applications made workplace know-how an essential element across the curriculum.

Educational Reform and High School Restructuring

The 1990s ushered in a new wave of educational reform that went beyond improving selected areas of education to asking schools to "wipe the slate clean" and re-invent education. The Kentucky Education Reform Act (KERA) did just that by declaring the total educational system to be inequitable and unconstitutional, thus initiating massive change to rebuild and restructure the public educational system.

KERA directed the State Board for Elementary and Secondary Education to review graduation requirements in light of expected student outcomes for students and schools. To carry out this mandate, a High School Restructuring Task Force was appointed and asked to recommend:

1. New paradigms for a restructured high school education so that student performance would be dramatically enhanced, the graduation rate increased, and a successful transition for all students to work, the military, or postsecondary education.

2. Minimum requirements for high school graduation that reflected performance outcomes for students and schools.

Task Force recommendations included these five core components (Task Force on HS Restructuring, 1993):

1. Individual Graduation Plan. Prior to entering high school, each student with the guidance of parents and school personnel must develop a plan for a specific program of study to prepare for college, vocational/ technical school, the workforce, and military or community service. The plan includes academic courses, requirements for an integrated academic portfolio, projected school-sponsored or approved activities, and provisions for a student-initiated culminating project.

The plan is kept on file and subject to change as the student's goals and interests change. The plan is reviewed annually by the student, parent or guardian, and designated school official.

2. Integrated Academic Portfolio. Work contained in the portfolio is to demonstrate attainment of the KERA goals and learner expectations.

3. Prior to the senior year, the student designs a significant culminating project that includes a major written component supported by appropriate documentation, references and research and an oral or visual performance, demonstration, exhibition or presentation. School Councils are to establish a process for approving the culminating project, timeline, and criteria.

4. School-Sponsored and Approved Activities. During high school, each student shall actively participate in at least one school-sponsored or approved activity each year. In addition, the student shall actively participate in two of the following activities: Service learning, school service, work-based learning, and student initiated enrichment.

5. Exit Review. High school graduation requires verification of achievement of all components for high school graduation and documentation of achievement of the KERA goals and learner expectations.

The Task Force also recommended development of a school climate that supports innovation; provides extensive professional development; maintains realistic student:teacher ratios; encourages a more flexible use of time; and provides educators and parents with student behavior management alternatives that promote responsibility, practice peer mediation and create practical solutions to problems. Also, all courses, including advanced placement, are to be taught with high expectations and open to all students. It was recommended that courses be eliminated that encourage lower student expectations and that every academic or vocational/technical pathway lead to all postsecondary options.

Tech Prep Programs

While major change was taking place in K-12 educational systems, vocational education was also initiating new directions that blended vocational education, academic education, career planning, and career preparation to raise students' level of technical and academic skills. The Carl Perkins Applied Technology Act (1990) provided federal support for a Tech Prep programmatic concept that required integration of academic and vocational knowledge and linkage of secondary and postsecondary preparation for career fields. Tech Prep built on ideas promoted by the SREB High Schools That Work project and supported the same concept of a rigorous academic program for vocational-technical students and integration of academic and vocational-technical education.

As schools became involved in Tech Prep, principals began to see how Tech Prep components matched with restructuring components. Specifically, Tech Prep required the following (Kentucky Tech Prep, 1996-97):

1. Utilization of a planning committee composed of both secondary and postsecondary vocational/technical and academic teachers, counselors, and administrators.

2. Development of a Tech Prep program in each occupational cluster that would increase student achievement.

3. Design for professional development for joint training of academic and vocational-technical teachers to implement the curriculum.

4. Identification of criteria for student selection/recruitment into Tech Prep including outreach and special population recruitment.

5. Development of a comprehensive guidance plan to include career awareness, exploration, assessment, planning, and development of an individual career plan.

Tech Prep aimed for a better understanding and application of technology, career awareness and planning, skills for a highly-educated workforce, a more focused high school vocational-technical curriculum, and a rigorous academic and vocational-technical skill continuum. Business and industry partners actively participated in planning, developing curriculum, sponsoring educational activities, supporting work-based learning opportunities, and assisting with staff development. Tech-Prep required career exploration, guidance, planning, and assessment no later than 9th grade; postsecondary program options with a planned sequence of secondary-postsecondary courses; and articulation agreements between secondary and postsecondary institutions. Curriculum development included integration of applied academics and vocational technical education, elimination of lower-level academic courses and the general track, and implementation of a work-based component.

The first funding for Kentucky Tech Prep programs was in the 1991-92 school year. The first year was a planning year; therefore, the first Tech Prep student enrollment was in 1992-93. In Kentucky schools, 1991-92 was also the year baseline student assessment data for KERA were collected. KERA cognitive assessment data consisted of written tests, portfolios, and performance events. Noncognitive assessment included transition of high school graduates into postsecondary education, work, or the military and the percent of ninth grade students graduating from high school.

Kentucky's Tech Prep Evaluation System

In 1993 a national study of Tech Prep programs was conducted for the first time. At the same time, Kentucky initiated an

evaluation system that not only collected descriptive program data but also provided an analysis of Tech Prep in terms of contributions that Tech Prep programming made to KERA and school success as measured by the KERA's Kentucky Instructional Results Information System (KIRIS). The Workforce Development Cabinet, in cooperation with the Department of Education, funded a project through the University of Kentucky to develop an evaluation computer database for Kentucky's Tech Prep program. The Kentucky Tech Prep evaluation system was to be consistent with data collected by the national study but with additional elements specific to KERA and KIRIS.

Because KERA accountability reverts to the school level, the state Tech Prep evaluative data were collected on an individual school basis rather than by Tech Prep consortium. Demographic and programmatic questions on the Kentucky data collection instrument were consistent with the types of data requested of consortia by the national study. The purpose of the Kentucky Tech Prep Evaluation System was to establish and maintain a database and data analyses to assess effectiveness of Tech Prep programs not only in achieving Tech Prep goals but also in helping Kentucky high schools improve cognitive and noncognitive performance as reflected by the KIRIS accountability system. Questions to be answered by the statewide collection of Tech Prep program data were the following:

1. Who is being served by Tech Prep programs?
2. Do career guidance programs include components at the middle, secondary, and postsecondary levels for assessment, planning, and placement?
3. What has been done to raise expectations and standards?

4. Is there a coherent sequence of vocational-technical and academic courses linking secondary and postsecondary preparation?

5. Do Tech Prep programs provide practice with advanced technology?

6. Do Tech Prep students demonstrate competence in application of academic skills?

7. Do Tech Prep students participate in community and work-based learning programs?

8. How do Tech Prep students compare to non-Tech Prep students in both cognitive assessment (KIRIS test scores) and noncognitive transition data and graduation rates?

Secondary and postsecondary data collection instruments were developed to collect individual school data. Both instruments were patterned after the national survey format to assist school compilation of data that could serve both state and national data collection needs. To help assure uniform interpretation of questions, a common list of terms was developed for use with the data collection instrument. The data collection forms were field tested in five pilot sites including both metropolitan and rural schools.

Meetings with Tech Prep Coordinators were held in two locations of the state to explain the data collection instrument and the Kentucky Tech Prep Evaluation System. The instruments were distributed and completed by each school offering Tech Prep programs. In addition, statewide data on KIRIS cognitive and noncognitive measures were obtained from the Kentucky Department of Education. A database was designed that produced school reports and also summarized school data into state totals. The second year of the Evaluation Project, refinements were made in the instrument

and the database program. After the first-year report, schools receive a printout of their previous year's school report to update.

Results from initial KIRIS cognitive data analysis showed the same trends for Tech Prep schools as for schools operating without Tech Prep. However, 1995-96 was the first year students graduated from high school having completed all elements of the secondary Tech Prep program. Indicators of KIRIS impact will only come from longitudinal comparison of data over time. More immediately, evaluation results indicate that business and industry and community involvement with schools increased with Tech Prep and that an increasing percentage of high school students in Tech Prep schools continue their education at the postsecondary level. Schools rated their ability to integrate Tech Prep into the larger reform efforts at the secondary level as the most successful aspect of Tech Prep.

Initial evaluation results showed that the postsecondary link of Tech Prep had changed curriculum the least. Tracking Tech Prep students through secondary and postsecondary programs proved to be a challenge. Reporting and following up students by high school was complicated by the fact that postsecondary schools typically receive students from many different high schools.

School-to-Work

In 1994, work begun with Tech Prep programs was broadened to all areas of education and the business community through the School-to-Work Opportunities Act. This Act provided federal

funding for School-to-Work partnerships that prepare students for self-support and career success. The School-to-Work Transition System has three components (Kentucky Teacher, 1996): work-based learning, school-based learning, and connecting activities. These components may be described as follows:

> Work-Based Learning provides experiences and activities in a work or work-type environment. These experiences bridge students' career interests and academic curriculum. Examples may be registered pre-apprenticeships, cooperative education, clinical experiences, internships, mentoring, shadowing, work-study, school-based enterprise, entrepreneurship, and service learning.
>
> School-Based Learning includes career awareness, career exploration, career assessment, career counseling, and career planning--plus the acquisition of the rigorous academic and technical skills students need to achieve the career goals. Examples include integrated academic and vocational/technical education, career days, career assessment and career transition plans, and a middle school career cluster exploration program.
>
> Connecting Activities coordinate school-based and work-based activities. Effective connections may take place by recruiting employers to provide work-based learning opportunities; linking each student to work-based learning opportunities relevant to career interests and goals; coordinating activities among employers, schools, teachers, parents, and students; supervising students and worksites and developing relationships with employers; and providing job placement services.

Because of Kentucky's success with High Schools That Work, Tech Prep, and emphasis on successful transition of secondary graduates to postsecondary education, the workforce, or military, as well as a collaborative planning process, one of the first eight states to receive a School-to-Work federal grant was Kentucky. Kentucky received $8 million to implement School to Work.

School to Work broadens educational, career, and economic opportunities for all students through partnerships between

businesses, schools, community-based organizations, and state and local governments (School to Work Opportunities, 1994). Employers become partners with educators to train students through paid work experience. Schools, in turn, challenge all students to higher academic and skill standards and help them identify career majors. School-to-work transitioning involves systemic restructuring called for in Goals 2000 and encourages coordination of school-to-work plans with overall education reforms.

Key characteristics of School to Work, in many ways, mirror earlier initiatives of Tech Prep and High Schools that Work:

* A planned program of work experiences coordinated with school-based learning.
* Rigorous academic content standards for all students.
* Integration of academic and vocational learning.
* Instruction in the classroom and workplace to expose students to all aspects of an industry.
* Secondary-postsecondary linkages.
* Career awareness, exploration and counseling.
* Selection of a career major.
* Workplace mentoring and instruction in general workplace competencies.
* Assistance for students in locating jobs and continuing their education.

Implications for Higher Education

With lifelong learning, linkages from one- and two-year postsecondary programs should extend upward to baccalaureate-level programs. Linkages between secondary and postsecondary education are a "win-win-win" situation for students, employers, and for

postsecondary institutions. With curriculum articulation and a seamless program, graduates have an opportunity to complete their preparation with higher skill levels because unnecessary duplication is eliminated. A better trained workforce helps American businesses compete with world markets. Postsecondary enrollments may be expected to increase as more secondary students enroll in a program that extends beyond high school and challenges them to move beyond the secondary level before entering the workforce.

Staff development for postsecondary faculty will need to expand the use of strategies similar to teaching strategies students experience in secondary programs; i.e, cooperative learning, problem solving, and integration of knowledge. Specific curriculum articulation planning will require course changes and specification of competencies and academic skills for each level of education. Colleges and universities will also need to determine data on dropout rates and success of graduates.

Implications for Preparation of School Administrators

What do these parallel programs mean for programs preparing educational administrators? First of all, administrators must be aware of a variety of programming mechanisms, including Tech Prep and School to work, that may be used to re-invent or restructure education. Administrators need collaboration skills to enable them to create partnerships with the community, parents, and business and industry. A knowledge of data collection and analysis is essential to determine successful elements of various program

initiatives. They will also need the same kind of skills that students need in the workplace: team building, problem solving, critical thinking, conflict resolution, and interpersonal skills.

Restructuring is a long-term, ongoing process. Administrators must provide the leadership for educational change. These leaders will need knowledge and understanding of the educational system, the psychology of change, how learning occurs, and problem solving and decision making processes (Toward Quality in Education, 1993). They must also have design tools to help restructure schools. Tech Prep and School to Work are part of this design toolkit for developing partnerships with business and making schools relevant to the needs of students.

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